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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,827	04/12/2001	Martin Kowatsch	Q64035	1954

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EXAMINER	
PAK, SUNG H	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/832,827	KOWATSCH, MARTIN	
	Examiner	Art Unit	
	Sung H. Pak	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response filed 7/28/2004 has been entered. All pending claims have been carefully reconsidered in view of the arguments set forth in the response. However, the arguments fail to put the pending claims in condition for allowance, and the current ground of rejection is maintained by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer (US 5,526,454) in view of Yanagawa et al (US 5,583,958) as discussed in the previous office action.

Mayer reference discloses an optical device with all the limitations set forth in the claims, except it does not explicitly show optical fiber crossing portions. Specifically, Mayer reference discloses: an optical waveguide structure, having a branching planar waveguide structure (Fig. 6), a waveguide material that is put into troughs formed in a substrate (column 10, claim 12); said waveguide material having a refractive index higher than the material delimiting the troughs (inherent characteristics of waveguiding material); wherein at least one fiber is partially inserted into the troughs (Fig. 6); wherein the waveguide structure is formed in the area between

branching as fibers (Fig. 6); wherein the waveguide material is formed as an optical polymer (claim 12); wherein the substrate is formed as an organic film material (abstract).

On the other hand, Yanagawa et al reference explicitly show the crossing optical fiber portions (Fig. 5), wherein the optical fibers are coupled to optical circuit chips, which may include branching planar waveguides (Fig. 8). One of ordinary skill in the art would find such crossing portions advantageous and desirable because it allows grouping of input/output optical fibers into/out of planar optical waveguide device based on any desired optical channel configurations. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Mayer device to have fiber crossing portions.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer (US 5,526,454) in view of Yanagawa et al (US 5,583,958) as applied above, and in further view of Itoh et al (US 6,115,515) as discussed in the previous office action.

Mayer and Yanagawa et al references disclose optical waveguide structures with all the limitations set forth in the claims as discussed above, except they do not teach the use of opto-electrical transducers to connect the waveguide structure to a circuit board.

Itoh et al, on the other hand, explicitly teaches the use of opto-electronic components to couple optical waveguide device to the mounting circuit structure (Fig. 4, column 5 line 32-column 6 line 35). Such arrangement is advantageous in providing compact and efficient coupling between electrical circuit component and optical waveguide communications device. Therefore, it would have been obvious to a person of ordinary skill in the art to modify Mayer and Yanagawa et al device to have opto- electronic transducer coupling the waveguide structure

to the electronic circuit component. It would have been desirable to have a compact and efficient opto-electric coupling component.

Response to Arguments

Starting on page 2 of the applicant's response, it is argued that "Since Mayer and Yanagawa each fails to teach or suggest the limitations of 'at least some of said fibers are at least partially inserted into said troughs, such that at least a first fiber of said fibers is at least partially inserted into said troughs, and at least a second fiber of said fibers crosses the first fiber,' these references, either alone or in combination, cannot render claim 1 obvious." (page 3, first paragraph). Specifically, it is argued "Yanagawa only discloses two different sets of overlapping optical fibers that are used to connect the optical waveguide chips to various pieces of office equipment and monitoring and testing devices." (page 2, third paragraph).

The examiner respectfully submits that even though it may be true that either references *taken alone* may not anticipate limitations of claim 1, Mayer *in view of* Yanagawa (as applied in the office action) renders the claimed limitations obvious.

Specifically, Mayer discloses an optical waveguide structure with almost all the limitations set forth in the claims. The only limitation that is not clearly anticipated by Mayer is fibers that cross each other somewhere along the length of the fiber. One of ordinary skill in the art would appreciate the fact that typical optical fiber installations inevitably involve optical fiber strands or bundles that cross each other somewhere along the length of the fiber. This is because the main purpose and advantage of using optical fiber strands is to allow the skilled artisan to

route optical signals freely to desired locations with minimal optical loss. The skilled artisan would never worry about whether the fibers cross each other, because optical fibers are not susceptible to "shorting" or "interference" unlike electrical wires. This concept is well known and it is as old as the history of optical fiber itself (the concept of "bending and routing" the light to desired location by the use of optical fibers). Nevertheless, Mayer does not explicitly illustrate optical fibers crossing one another.

Yanagawa, on the other hand, explicitly teaches this well known concept of optical fibers crossing one another while they are routed to desired output locations (see Claim Rejections- 35 USC 103). Although the applicant argues that Yanagawa "only discloses two different sets of overlapping optical fibers that are used to connect the optical waveguide chips to various pieces of office equipment and monitoring and testing devices," the examiner respectfully submits that Yanagawa teaches more than that.

Specifically, Yanagawa teaches optical fibers coupled with a planar waveguide chip, wherein the planar waveguide comprises branching waveguides (Fig. 5). Figures 7-8 explicitly teaches that the planar waveguide chips contains branching planar waveguides (also see column 10 lines 10-35). Further Yanagawa explicitly teaches plurality of optical fibers each coupled with planar waveguide cores (Fig. 13-15). As discussed in the previous office action, there is a clear and obvious motivation to combine the teaching of Yanagawa (having the fibers cross each other for easier grouping of input/output optical fibers) with the disclosure of Mayer, and thus all the claimed limitations of the instant application are rendered obvious.

Starting on page 3, it is further argued that Yanagawa does not constitute analogous art, because Yanagawa is not in the same field of endeavor (page 3, second paragraph). The examiner respectfully submits that Yanagawa IS in the same field of endeavor because both the instant application and the Yanagawa reference deals with optical wiring systems using planar waeguide substrates and optical fibers. Both the instant application and the Yanagawa reference concern coupling of planar optical waveguides and optical fibers. Therefore, although the ultimate problem solved by Yanagawa may be different from that of the instant application, they are sufficiently related such that Yanagawa constitutes an analogous art.

For these reasons the arguments set forth in the applicant's response is deemed not convincing, and the ground of rejection provided in the previous office action is maintained by the examiner.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Also see Dannoux et al (US 5,296,072), which discloses coupling of branched planar waveguide with optical fibers, wherein the optical fibers cross one another (Fig. 3c, Fig. 7).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sung H. Pak
Examiner
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sp

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